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## Document Number 76

Entry 76 of 85

File: DWPI

May 27, 1996

DERWENT-ACC-NO: 1997-106548

DERWENT-WEEK: 199710

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TITLE: Appts. for extracting plant raw materials with microwave unit - has extractor with body transparent to microwave radiation and is formed by cylindrical perforated drum set on hollow horizontal shaft with openings

INVENTOR: KVASENKOV, O I; LOMACHINSKII, V A ; PENTO, V B

## PRIORITY-DATA:

1994RU-0035697

September 27, 1994

## PATENT-FAMILY:

PUB-NO

PUB-DATE

LANGUAGE

PAGES

MAIN-IPC

RU 2061025 C1

May 27, 1996

N/A

004

C11B009/02

INT-CL (IPC): B02 C 19/18; C11 B 9/02

ABSTRACTED-PUB-NO: RU 2061025C

## BASIC-ABSTRACT:

Extn. facility consists of feed lines for the non-polar extractant (1) and plant raw material (2), mixer (3) following which the extractor (4) with the microwave unit (5) is located in a closed circuit, separator (6), evaporator (7), solvent cake collection tank (9) connected to the separator (6) and the extract collection tank (10) connected to the evaporator (7).

The extractor (4) is made in the form of a radiation transparent body (11) in which the radiation transparent drum (15) is set on the horizontal hollow drive shaft (13) with the openings (14). The drum (15) is surrounded by the radiation transparent perforated stator (17) whose perforation openings (18) are equipped with the swirlers (19). The mixer (3) is connected to the extractor (4) via the hollow shaft (13). The evaporator (7) gas stage is connected with the extractor (4) ring chamber (12).

USE - Extraction facility is used for the extraction of aromatic oils from hobs.

ADVANTAGE - Extraction process is improved.

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## Document Number 77

Entry 77 of 85

File: DWPI

May 20, 1996

DERWENT-ACC-NO: 1997-075902

DERWENT-WEEK: 199707

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TITLE: Microwave extn. of raw plant material - by mixing with solvent to give film flowing under centrifugal force, microwave irradiation, phase sepn., and recirculation of gaseous phase

INVENTOR: KVASENKOV, O I; LOMACHINSKII, V A

## PRIORITY-DATA:

1994RU-0021000

May 24, 1994

## PATENT-FAMILY:

PUB-NO

PUB-DATE

LANGUAGE

PAGES

MAIN-IPC

RU 2060262 C1

May 20, 1996

N/A

004

C11B009/02

INT-CL (IPC): C11 B 1/10; C11 B 9/02

ABSTRACTED-PUB-NO: RU 2060262C

## BASIC-ABSTRACT:

Raw material is mixed with a lipophilic solvent and allowed to flow in film form in a centrifugal force field, irradiated by microwaves, and the phases sepd.. The extract is sepd. from micelles by distn., and the gaseous phase is condensed for return to the cycle by injection, with adiabatic expansion, during processing of the next portion of mixt.. The gaseous phase is injected in supersonic pulses. Since the Reynolds number is 100-1000, and the time-averaged Nusselt number is up to 20-30, the gaseous phase of solvent is cooled down practically to the temp. of the extn. mixt., at which the gaseous phase of the solvent condenses and cavitation bubbles collapse giving additional ultrasound oscillations in extn. mixt.. Using high energy ultrasound oscillations accelerates cell membrane destruction, reduces the thickness of the laminar layer on the phase boundary, accelerates diffusion, and intensifies the process of mixing and mass-exchange.

USE - To extract aromatic, fatty and ester oils from raw plant material using lipophilic extracting agents.

ADVANTAGE - Intensified process of extraction due to improved conditions of phase contact and reduced energy consumption through using the condensation energy of the gaseous phase of the solvent, leading to quicker extraction of equal product yields from equal amounts of raw material.

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